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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)	
1280-SC12755TS	

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on _____

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Application Number	Filed
10/600,637	June 20, 2003

First Named Inventor	
David HAYNER	

Art Unit	Examiner
2627	Kim Kwok CHU

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 51,596.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/Ryan S. Davidson/
Signature

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November 30, 2007
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	David HAYNER, et al.		
Title:	DECOUPLING TECHNIQUE FOR OPTICAL PICKUP UNITS		
App. No.:	10/600,637	Filed:	June 20, 2003
Examiner:	Kim Kwok CHU	Group Art Unit:	2627
Customer No.:	34814	Confirmation No.:	7168
Atty. Dkt. No.:	1280-SC12755TS		

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

REMARKS IN SUPPORT OF THE PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

In response to the Final Office Action mailed October 16, 2007 (hereinafter "the Final Action") and pursuant to the Notice of Appeal and Pre-Appeal Brief Request for Review submitted herewith, the Applicants request review of the following issues on appeal. In order to facilitate full consideration of the remarks filed herewith, the Applicants respectfully request that the Art Unit Supervisor designate a panel composed of at least three examiners.

Watanabe fails to disclose a signal with decoupling compensation as recited by claim 21

Independent claim 21 recites the features of "a first actuator decoupler portion comprising a first input coupled to the output of the first actuator control law portion and a second input coupled to the output of the second actuator control law portion, and an output to provide a signal *with decoupling compensation for a first actuator based on the representation of the second actuator position*." The Final Action asserts that the DSP 129 of Watanabe (U.S. Patent No. 6,298,019) discloses the recited "first actuator decoupler portion." *Final Action*, p. 5. In particular, the Office asserts that Watanabe discloses the recited features "to provide a signal with decoupling compensation for a first actuator based on the representation of the second actuator position" in that Watanabe teaches that the signal TC "is compensated by a gain change means 122 which [is] *based on the gain change 121 of the second actuator control law portion [differential amplifier] 133*." *Id.*, p. 5 (emphasis added). In a prior Office Action, the Office clarifies this interpretation in stating "[e]ach servo operation [tracking and focusing] is compensated by its gain change means (121, 122, 127) and all the gain change means are

connected as a loop to the servo processor [DSP] 129. *In other words, the output of one actuator control signal is based/affected by the actuator control signal because their gain compensation is a series loop.*" *Non-Final Office Action mailed May 3, 2007*, p. 3 (emphasis added).

As discussed at pages 3 and 4 of the Response mailed August 2, 2007 (hereinafter, "the Previous Response"), there is no support for the Office's position that Watanabe teaches that the gain change circuits 121, 122, and 127 are connected or cascaded in series or that the output of one actuator control signal modifies another actuator control signal in any manner. As discussed in the Previous Response, the alleged "series" connections between the gain change circuits 121, 122, and 127 is merely a drafting artifact and the written description of Watanabe contains no teaching that the gain change circuits 121, 122, and 127 are connected together or have a cross-coupling effect on each other. Thus, the Office's interpretation of Watanabe as teaching series-connected gain change circuits 121, 122, and 127 is unreasonable and unsupported by the disclosure of Watanabe.

In the Final Action, the Office responds by stating that "all the gain change means 121, 122, and 127 are physically bridged together by the DSP 129" and that "the DSP 129 still receives input signals from all gain change means 121, 122 and 127 and output control signals to the gain change means according to the inputted signals as a single combined servo loop." *Final Action*, p. 2. The Office further asserts that decoupling compensation is provided in that Watanabe "teaches that the tracking gain is learned at the previous focus jumping (column 39, lines 27-34). In other words, the prior art of Watanabe teaches 'to provide a signal (track gain) with decoupling compensation (optimal) for a first actuator (tracking servo) based on the representation of the second actuator position (focusing jumping)'." *Id*, p. 3. The passage of Watanabe relating to the embodiment encompassing the relied-upon passage teaches a technique for learning the tracking gain of the tracking servo by creating a disturbance and then calculating a correction value with which the tracking gain can be corrected. *Watanabe*, col. 38, line 24 to col. 39, line 34 ("Embodiment 10"). In particular, Watanabe teaches that this learning technique can be initiated by a focus jumping, but ***Watanabe fails to disclose, or even suggest, that this learned tracking gain of the tracking control has any effect on the focus control or vice versa, or that there is cross-coupling between the focus control and the tracking control in any manner.*** Rather, Watanabe merely teaches that an event in the focus control, i.e., focus jumping, can be used to initiate the tracking gain learning process. ***Neither this passage nor any other***

passage of Watanabe discloses or suggests that any control signal includes decoupling compensation in any manner, and thus Watanabe fails to disclose at least the features of "an output to provide a signal *with decoupling compensation for a first actuator based on the representation of the second actuator position"* as recited by claim 21.

Watanabe fails to disclose a focus control command excites a tracking control loop and a tracking control command excites a focus control loop as recited by claim 23

Independent claim 23 recites the features of "a focus control loop," a tracking control loop," "wherein the focus control loop and the tracking control loop are cross-coupled," and "wherein a focus control command excites the tracking control loop and a tracking control command excites the focus control loop." The Office again relies on the unsupported interpretation of Watanabe as teaching that the operations of the gain change circuits 121, 122, and 127 are dependent on each other. *Final Action*, p. 6. As discussed above and as discussed in detail in the Previous Response, no such relationship is disclosed or suggested by Watanabe. As a first issue, Watanabe fails to disclose, or even suggest, that there is cross-coupling between the tracking control and the focus control of the system of Watanabe. Secondly, Watanabe fails to disclose, or even suggest, that a tracking control command on the tracking component of Watanabe excites the focus component of Watanabe, or vice versa, in any manner. Although the Office attempts to demonstrate cross-coupling and mutual excitation by way of the DSP 129 of Watanabe, Watanabe merely discloses that events in one of the tracking component or focus component can serve to initiate an operation in the other, but one of ordinary skill in the art will readily appreciate that a triggering event does not serve to excite a control loop as provided by claim 23.

Watanabe fails to disclose the decoupler feature recited by claim 23

Claim 23 also recites the features of "a decoupler configured to produce a modified focus control command from the focus control command and the tracking control command, and configured to produce a modified tracking control command based on the tracking control command and the focus control command, *wherein the modified focus control command has a different excitation of the tracking control loop than the focus control command and wherein the modified tracking control command has a different excitation of the focus control loop than the tracking control command*." Watanabe fails to disclose or suggest that a focus control signal is modified based on a tracking control signal, or vice versa. Further, Watanabe fails to disclose

that any modified control command so created has a different excitation of the corresponding control loop compared to the unmodified control command. Thus the Office fails to establish that Watanabe discloses or suggests at least the above-identified features of independent claim 23.

Watanabe fails to disclose determining cross-coupling characteristics as recited by claims 26 and 36

Independent claim 26 recites the features of "determining cross-coupling characteristics of a focus actuator and a tracking actuator of an optical pickup unit." Independent claim 36 recites similar features. With respect to these features, the Office asserts "gain means 121, 122 and 127 for focusing and tracking operations are a servo loop which can be considered as a cross-coupling characteristics [sic]." *Id.*, p. 7. As discussed above, the Office's interpretation of the gain change circuits 121, 122 and 127 as a servo loop is unsupported and thus unreasonable. Regardless, even if it is assumed, *arguendo*, that Watanabe teaches that the operations of the gain change circuits 121, 122, and 127 affect each other and it is also assumed that this affect is cross-coupling, the Office fails to establish how Watanabe teaches the ***determination*** of these alleged "cross-coupling characteristics" between the gain change circuits 121, 122, and 127. Further, Watanabe fails to address cross-coupling between actuators, and the characteristics thereof, in any way. Accordingly, Watanabe fails to disclose, or even suggest, determining cross-coupling characteristics of a focus actuator and a tracking actuator as provided by claim 26 and as similarly provided by claim 36.

Watanabe fails to disclose determining a decoupling matrix as recited by claims 26 and 36

Independent claim 26 further recites the features of "determining a decoupling matrix to decouple the focus actuator and the tracking actuator." Independent claim 36 recites similar features. With respect to these features, the Office asserts that the "DSP 129 and gain change means [121, 122, and 127] [form] a servo loop which can be considered as a de-coupling matrix of tracking and focusing." *Id.*, pp. 7-8. Thus, the Office is interpreting the alleged "servo loop" of the DSP 129 and the gain change circuits 121, 122, and 127 as both the recited "cross-coupling characteristics" and the "decoupling matrix" which is determined from the "cross-coupling characteristics." In addition to the lack of support for the Office's interpretation of Watanabe as teaching the alleged "servo loop," ***the Office fails to provide any description of how the term "decoupling matrix" has been reasonably interpreted and, consequently, how Watanabe discloses this reasonable interpretation of "decoupling matrix."*** Further, even if it

is assumed, *arguendo*, that the alleged "servo loop" of the DSP 129 and the gain change circuits 121, 122, and 127 constitutes a "decoupling matrix," the Office fails to establish how Watanabe determines the "decoupling matrix"/"servo loop" much less how Watanabe determines the "decoupling matrix"/"servo loop" based on the "servo loop" (which the Office also interprets as the "cross-coupling characteristics" from which the "decoupling matrix" is determines as provided by claim 26). Accordingly, the Office fails to establish that Watanabe discloses or suggests at least the above-identified features of claim 26 and the similar features of independent claim 36.

The Office fails to establish a *prima facie* case of anticipation for claim 31

Turning to independent claim 31, the Final Action does not provide any rationale for its rejection of this claim, and thus the Office fails to establish a *prima facie* rejection of claim 31. Regardless, independent claim 31 recites the features of "a decoupler configured to decouple the focus actuator from the tracking actuator by reducing signal cross coupling." In its discussion of claim 32, which depends from claim 31, the Office again relies on the unsupported and unreasonable interpretation of Watanabe as teaching interlinked gain change circuits 121, 122, and 127. *Final Action*, p. 8 ("gain change means 121, 122 and 127 are cascaded in a series mode which modifies a tracking mode and a focusing mode"). Further, Watanabe fails to address signal cross coupling, or the reduction thereof, in any manner. Watanabe therefore fails to disclose, or even suggest, a decoupler that decouples a focus actuator from a tracking actuator by reducing signal cross coupling as provided by claim 31.

Conclusion

As discussed above, the Office fails to establish that Watanabe discloses each and every element recited by any of the pending claims. Accordingly, reconsideration and withdrawal of the pending anticipation rejection is respectfully requested.

Respectfully submitted,

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November 30, 2007
Date